7.0 Social, Economic, and Environmental Considerations

7.1 Introduction

To satisfy the requirements of the National Environmental Policy Act, a Draft Environmental Assessment (EA) is being prepared, concurrent with the preparation of this Design Concept Report, to document the development and evaluation of feasible alternatives for widening I-17 from the SR 101L TI to the New River TI. The section of I-17 between the New River TI and the Black Canyon City TI is not addressed in the EA. The Draft EA describes the project purpose and need and assesses the potential social, economic, and environmental impacts associated with the proposed project. The impacts of the proposed widening are summarized in the following sections.

7.2 Land Use

7.2.1 Existing Conditions

The existing land uses along the study corridor consist of a mixture of commercial, residential, recreational, and undeveloped lands that are privately or publicly owned. The southern section of the project area between the SR 101 TI and the Central Arizona Project (CAP) Canal is mostly urban, developed land, with the density of development decreasing in a northerly direction. Several mobile home parks are located near Deer Valley Road, and single-family residences are located west of I-17, north of Happy Valley Road. Other key features include the Adobe Mountain Juvenile Institute and a city-operated landfill west of I-17, as well as the USAA office complex east of I-17 near Happy Valley Road.

From the CAP Canal to Carefree Highway, undeveloped State Trust Land is located on both sides of the freeway. The northern section of the project area, which includes the area north of Carefree Highway to New River, is largely undeveloped and rural in nature. This area is comprised mostly of grazing lands and undeveloped lands. Some residences and commercial properties are also present. However, this area is growing and an increasing number of residential and commercial properties are becoming established, including the new Tramonto development at Carefree Highway and the Anthem development along Anthem Way.

7.2.2 Consistency with Local Land Use Plans

Existing land use plans were reviewed to determine whether the proposed widening of I-17 was consistent with current state and local planning. These plans included the Maricopa County Comprehensive Plan, the City of Phoenix General Plan, the New River Area Plan, and the MAG Regional Transportation Plan. As proposed, the widening of I-17 is consistent with and will support the development envisioned in these plans.

7.2.3 Land/Access Rights Acquisition

The project will require the acquisition of approximately 63 acres of new right-of-way (excluding City of Phoenix requirements for construction of frontage roads between Pinnacle Peak and Happy Valley and between Dixileta and Carefree Highway). Slightly more than half of this land represents undeveloped public lands largely controlled by the Arizona State Land Department.

The majority of the affected private property consists of undeveloped lands or property where future development will occur. The lands affected include industrial properties, commercial and office lands, and residential property. In the majority of cases, this right-of-way acquisition will not displace the current use on the site, but will impinge on the portion of the property with frontage on I-17 or the

adjoining frontage roads. Several commercial areas where trailers are sold, serviced, and/or stored on the property will be affected, although the entire use will not be displaced.

Access onto I-17 frontage roadways will remain, although the nature of this access would change as additional interchanges are constructed. Conversion of the existing two-way frontage roads to one-way frontage roads, as is proposed under the recommended alternative, may require using an alternate access route or the purchase of access rights from these property owners. In addition, the right-of-way requirements for future interchanges could affect some of the property owners that are not affected by the I-17 widening.

7.3 Water Quality

7.3.1 Floodplains

In accordance with 23 Code of Federal Regulations (CFR) 650 Subpart A, the project was evaluated for its potential impact to the floodplain upstream and downstream of the proposed improvements. The Flood Insurance Rate Map panels for the project area were obtained from the Federal Emergency Management Agency in order to conduct the evaluation. Areas within the 100-year floodplain extend across the project area at Scatter Wash and its south branch, Skunk Creek, CAP Canal, Deadman Wash, and New River, where bridges or culverts convey stormwater under I-17.

The proposed widening of I-17 would involve the construction of additional bridges and/or culverts at these locations. These improvements would be designed to minimize floodplain encroachments and not affect the flood-carrying capacity of each drainage structure. The project would result in increased stormwater runoff being discharged from the new impervious roadway surfaces. However, the drainage design would incorporate adequately-sized culverts, drainage channels, and/or retention basins to reduce the flood potential for downstream land uses.

7.3.2 Section 401/404 Issues

A jurisdictional determination regarding waters of the U.S. was conducted by delineating the ordinary high water mark for the Scatter Wash, Skunk Creek, Deadman Wash, New River, and other ephemeral washes in the project area. This delineation was performed in accordance with the U.S. Army Corps of Engineers' (Corps) 1987 Delineation Manual. Based upon the delineation, a total of 71 drainages and washes were identified. The widening of I-17 would require extension of existing box and pipe culverts along these washes as well as the widening of existing bridges or construction of new bridges at Skunk Creek, the CAP Canal, Deadman Wash, and New River. The Corps' concurrence in this determination is pending.

The proposed improvements to I-17 may be eligible for Nationwide General Permit No. 14 that would be issued by the Corps pursuant to Section 404 of the Clean Water Act. If eligible, the proposed improvements would be conditionally certified by the Arizona Department of Environmental Quality (ADEQ) under Section 401 of Clean Water Act. In order to reduce erosion, minimize sedimentation, and eliminate non-storm water pollutants that may be discharged into waters of the U.S., the project would comply with the *Arizona Department of Transportation Standard Specifications for Road and Bridge Construction* (2000 edition), Section 104.09 "Prevention of Landscape Defacement: Protection of Streams, Lakes and Reservoirs." In addition, all disturbed soils that would not be landscaped or otherwise permanently stabilized would be seeded with species native to the project vicinity.

All discarded waste (including but not limited to human waste, trash, debris, oil drums, fuel, ashes, equipment, concrete, and chemicals) generated during construction activities would be removed and/or disposed according to federal and state regulations. Waste material would not be discharged into perennial or intermittent streams or washes, or other waters of the U.S., unless the contractor has

obtained the appropriate Section 401 and 404 permits in accordance with applicable federal and state regulations. Contractor staging areas and material stockpiles (including aggregates, fill materials, petroleum, and other chemical products) would be located outside existing floodways and protected so that sediment and/or spills would not enter stream channels or affect groundwater.

7.3.3 NPDES Storm Water Pollution Prevention Plan

Because one or more acres of land would be disturbed during construction, an Arizona Pollutant Discharge Elimination System general permit will be required. The ADOT Roadside Development Section will determine who will prepare the Storm Water Pollution Prevention Plan during final design. The Phoenix Construction District and contractor will submit the Notice of Intent and the Notice of Termination to the ADEQ.

7.4 Biological Resources

The project area exhibits three ecosystem types due to varying levels of development and the varying elevations present in the vicinity. The southernmost portion of the project, from the SR 101 TI to the Happy Valley TI (MP 218), is very developed and urban in its composition. Vegetation in this area is generally limited to common landscaping species, grasses, and creosotebush. This area generally does not provide substantial wildlife habitat resources. From the Happy Valley TI northward to New River, the biological community is more natural in composition, although development and recent construction impacts have negatively affected the ecosystem, providing less quality wildlife habitat. This area is located within the lower Sonoran desertscrub ecosystem and is dominated by creosotebush and saguaros in flat areas and on hillsides, with minor water channels lined with mesquite, acacia, and palo verde trees. The area north of the New River TI is located within the transition zone to the upper Sonoran desertscrub ecosystem due to the rise in elevation at this location. This area provides higher quality wildlife habitat due to less development and associated disturbances, as well as the riparian vegetation present along the New River.

7.4.1 Threatened and Endangered Species

The U.S. Fish and Wildlife Service's (USFWS) list of endangered, threatened, candidate, and proposed plant and wildlife species for Maricopa County was reviewed by a qualified biologist. Designated critical habitat for the listed species does not occur in the project area. The proposed project would have no impact on the listed plant species because the proposed project area is located at a maximum elevation of 2,100 feet, which is below the elevations for oak-juniper or chaparral vegetation where the endangered Arizona agave and Arizona hedgehog cactus occur. In addition, the project would have no effect on the Arizona cliffrose because the area does not contain limestone deposits that are needed to support cliffrose populations.

The project would have no impact on the brown pelican, cactus ferruginous pygmy-owl, desert pupfish, Gila topminnow, razorback sucker, southwestern willow flycatcher, Yuma clapper rail, or the Yellow-billed cuckoo because these species are associated with aquatic habitats, broadleaf riparian gallery forest, and/or perennial water sources that are not present. The only riparian habitat that may be suitable for these species in the vicinity of the study area is along the New River. The proposed project would not affect this habitat type, as it is located more than ¼ mile from the proposed project area. Although there is potential foraging habitat for wintering bald eagles near Lake Pleasant and potential nesting sites along Agua Fria River drainages, it is highly unlikely that the proposed project would affect the species due to the absence of suitable nesting or roosting habitat. Even though I-17 passes through the known range of the lesser long-nosed bat, the project would not affect this listed species because the study area does not contain suitable roosting or maternal sites for this species. Vegetation removal due to construction could result in the loss of food plants for this species; however, suitable foraging habitat for this species is abundant in the vicinity.

7.4.2 Arizona Species of Concern

The Arizona Game and Fish Department's (AGFD) list of special status species for the project vicinity includes the following species classified as Wildlife of Special Concern in Arizona. Potential habitat areas for the Sonoran desert tortoise, although not high quality habitat, exist adjacent to the I-17 roadways. The project would adhere to the Arizona Game and Fish Department's *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects.*

7.4.3 Arizona Native Plants

It is likely that protected native plants are found in landscaped or natural portions of the project area. These species could include various cactus species, agaves, yuccas, cholla, and leguminous trees such as palo verde, mesquite, and ironwood. Protected native plants within the construction limits would be impacted by the proposed project; therefore, the ADOT Roadside Development Section would notify the Arizona Department of Agriculture at least 60 days prior to the start of construction to afford commercial salvagers the opportunity to remove and salvage these plants.

7.4.4 Invasive Species

During final design, individual construction segments of the project area will be surveyed by ADOT's Natural Resources Section to determine if invasive species are present within the segment. If invasive species are found within a given construction segment, the ADOT Natural Resources Section will treat these species prior to construction and will continue any necessary treatments following construction completion. In addition, all disturbed soils that will not be landscaped or otherwise permanently stabilized by construction will be seeded using species native to the project vicinity.

In order to prevent the introduction of invasive species, the construction contractor will be required to wash all earth-moving and hauling equipment at the contractor's storage facility prior to entering the construction site. If invasive species are found within a given construction segment, the contractor will also be required to wash all earth-moving and hauling equipment prior to leaving the construction site in order to prevent the spread of invasive species seed to uncontaminated areas. The contractor will notify the ADOT Natural Resources Section of the location of any proposed wash sites prior to their operation.

7.5 Visual Resources

The visual character of the southern section of the project area is typical of an urban, metropolitan area. A mixture of residences and commercial businesses dominate the view. The visual character of the central and northern sections of the project area is dominated by relatively undisturbed Sonoran Desert. From various locations, the northern and western views include distant mountain ranges, such as the Bradshaw and Hieroglyphic Mountains. Other landmarks visible within the project area include Gavilan Peak and Daisy Mountain. In general, the landscape is characterized by typical desert scenery with occasional rural developments and ranch improvements (i.e., fences and earthen tanks). Views of the project area are occasionally contrasted with the desert view by the presence of residential and commercial development, stockpiled construction materials, and built structures. The I-17 foreground is dominated by bridge crossings at New River, Skunk Creek, and the CAP Canal. Other interchanges along I-17, occurring at Deer Valley, Pinnacle Peak, Carefree Highway, Pioneer, Anthem Way, and New River, and elevated portions of I-17 are also dominant features in the I-17 foreground. The Carefree Highway, as it passes through the project area, is designated as a Scenic Corridor by the Maricopa County Planning and Zoning Department. This designation reinforces the rural/natural desert character of the corridor.

The project will replace the existing open median with paved roadways, shoulders, and concrete median barrier. In addition, the paved roadway will extend beyond the existing edge of pavement on both sides of I-17. South

of Carefree Highway, in most instances, the frontage roads will also be relocated and will extend beyond their present location. For the most part, however, locating the additional lanes and shoulders in the existing median will minimize the visual intrusion and aesthetic effects of the new freeway areas. Lane additions in the median will also minimize effects on surrounding viewsheds, by minimizing disturbances to adjoining uses and areas.

7.6 Air Quality

The I-17 project area lies within the Maricopa County non-attainment area for carbon monoxide (CO), particulate matter (PM_{10}), and ozone (O_3). ADEQ's Air Quality Division has determined that levels of air pollutants for CO and O_3 within the project area do not meet federal eight-hour standards. However, preliminary results from carbon monoxide monitoring performed at three sites in the project area in 2000 by the Maricopa County Environmental Services Department (MCESD) and the ADEQ indicated that neither the 1-hour nor 8-hour standards were exceeded. Similarly, ozone measurements at monitoring sites in the vicinity of the project conformed to the National Ambient Air Quality Standards (NAAQS). CO is the pollutant of main concern on a project-level basis because of its potential hazard to public health at excessive concentrations. Preliminary results for 2000 from the three MCESD/ADEQ monitoring sites in the vicinity of the project indicate no violations of either the annual or maximum 24-hour concentrations. In order to abate PM_{10} concerns associated with the construction of a project, water will be used to control dust pollution in accordance with Maricopa County standards (Rule 310 – Fugitive Dust Ordinance).

An air quality assessment was performed to predict the impact of vehicle emissions from the proposed roadway on future CO levels in the project vicinity. Other pollutants, such as particulate matter and oxides of nitrogen are also components of vehicular emissions. However, the impacts of carbon monoxide are most easily assessed and provide a convenient measure of air quality.

The air quality analysis focused on the local impact of carbon monoxide emissions estimated for the existing roadway configuration in 2002 and 2025 (No Build) and for the proposed improvements in 2025. Predicted 1-hour concentrations of CO resulting from the proposed roadway were generated and then added to the background concentration to derive the total predicted CO levels. The background 1-hour CO concentration used for this analysis was 2 ppm, based on data from the north Phoenix monitoring sites.

Under the No Build alternative, the maximum predicted 1-hour concentrations of CO in 2025 generally were higher than those values obtained for the year 2002. This increase is due to the large increase in traffic volumes in 2025. The predicted 1-hour and 8-hour concentrations neither exceed nor approach the federal standards. The predicted 1-hour and 8-hour CO concentrations under the Build alternative generally remain near those levels predicted for the No Build condition. The predicted 1-hour CO concentrations, when added to the background concentration, would range from 2.7 to 7.5 ppm for the recommended alternative. Predicted 8-hour CO concentrations would range from 1.9 to 5.3 ppm. These concentrations would be substantially below the NAAQS.

Some temporary deterioration of air quality would be expected due to the operation of construction equipment and the slower traffic speeds associated with a construction zone. However, this localized condition would be discontinued when the project is completed. Short-term impacts due to particular matter or dust emissions may also occur during the construction phase, but these may be reduced through the use of watering or other dust control measures. Fugitive dust generated from construction activities would be controlled in accordance with the Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, Section 104.08 (2000 Edition), special provisions, and local rules or ordinances. Construction of the proposed project would comply with Maricopa County Air Quality Rule 310 – Open Fugitive Dust Sources and any required air quality permits.

7.7 Noise

As described in the Noise Impact Report and summarized in the Draft EA, noise impacts adjacent to the project area were evaluated by comparing predicted traffic noise levels in the existing (2001) condition to noise levels for the design year 2025 for both the No Build and Build conditions. Noise levels were assessed at 23 representative sensitive noise receivers that were identified within the proposed project limits. The receiver sites were identified based on land use type and proximity to the proposed highway improvements. The future traffic noise condition evaluated for the project area was traffic LOS C where this service level of traffic operation will occur.

Predicted noise levels along the proposed roadway in 2025 would range from 51 dBA at the receiver closest to I-17 north of the Pioneer Road TI to 80 dBA at receivers closest to I-17 at the mobile home parks north of Deer Valley Road. The predicted noise levels under the Build condition are higher than predicted noise levels under existing conditions. These increases by I-17 segment are:

- 10 to 12 dBA south of Carefree Highway (Receivers 1-13),
- 0 to 5 dBA from Carefree Highway to New River (Receivers 14 to 23).

The increase in noise levels for receivers south of Carefree Highway is related to the change in pavement surface from asphalt to concrete (8 dBA) and the increases in traffic volumes (4 dBA) due to the addition of general use, HOV, and auxiliary lanes. North of Carefree Highway, the increase is primarily due to the increase in traffic volumes. Based on the predicted noise level results for the Build Alternative, 16 of the 24 receivers were evaluated for mitigation.

A total of ten sound barrier locations were evaluated, seven located east of I-17 and three west of the highway, to address the projected noise levels at the 14 receptor sites. Five of the ten sound barriers are not considered reasonable since the receivers are isolated, and the cost per benefited receiver ratios are well in excess of the ADOT NAP cost criterion. The remaining five sound barriers will need further review by ADOT to determine which scenario is reasonable and most cost effective based on the amount of noise reduction achieved. These five locations should be considered for further evaluation as the project progresses.

If implemented, two barriers would be located along the east side of I-17 between Rose Garden Lane and Deer Valley Road. Barrier E3 would be located along the east side of I-17, adjacent to the mobile home parks north of Deer Valley Road. Barrier W1 would be located adjacent to a mobile home park in the northwest quadrant of the I-17/Deer Valley Road TI, and Barrier W2 would be adjacent to the KB Homes development just south of the CAP Canal. The evaluated sound barrier for the KB Homes development (Barrier W2) may require additional analysis to determine the most optimal solution between achieving a 5 dBA reduction and maintaining a reasonable cost per residence benefited.

Short-term noise impacts would be experienced during construction of the proposed improvements. An analysis was conducted to assess the collective impact of construction noise. The maximum noise levels of various types of construction equipment were measured at the R/W line during a previous highway construction project. The results of the preliminary estimates indicate that sensitive receivers immediately adjacent to the right-of-way could be substantially affected by construction noise. Temporary noise barriers could be used to shield these receptors during the construction period.

7.8 Hazardous Materials

A Preliminary Initial Site Assessment for hazardous materials was conducted for the project area in order to determine the potential for encountering environmental contamination from hazardous materials due to previous and/or existing activities in the proposed R/W. Field reconnaissance was conducted to identify potential

contamination based on observations of existing and former land uses, soil conditions, construction materials, chemicals, and on-site equipment. In addition, a search of available ADEQ and EPA records was performed.

According to the ADEQ Hazardous Materials Incident Logbook, 11 hazardous materials incidents (releases or dumping) have occurred at various locations along I-17, including at the Carefree Highway, Pioneer Road, and New River Road interchanges. These cases have been remediated. Data from ADEQ's underground storage tank (UST) database indicated there are three UST sites between Carefree Highway and New River. Two sites are located near New River, and one inactive site with three reported leaking USTs (LUST) is located near the Carefree Highway interchange. In the southern section of the project area, there are 49 sites with removed USTs, 29 sites with active USTs, and 29 reported LUSTs. These sites are located outside the proposed R/W for the I-17 widening and present no risk to the project.

There are no closed or inactive landfills in the project vicinity. The only active landfill is the Skunk Creek Landfill located at 3165 West Happy Valley Road, west of the I-17 corridor and well outside the proposed project R/W. Within the project area, there are 83 drywell sites registered on the ADEQ AZURITE Database. All of these wells are located within the southern section of the project area in northern Phoenix, but none of these will be affected by the project. There are no SUPERFUND sites located within the project area.

If suspected hazardous materials are encountered during construction, work would cease at that location and the project engineer would be notified immediately to arrange for proper treatment or disposal of those materials.

7.9 Cultural Resources

Cultural resources located within the study area were identified from information on file at the State Historic Preservation Office, Arizona State Museum, the BLM Phoenix Field Office, the Bureau of Reclamation, and the ASLD. Additional information was obtained from AZSITE and historic General Land Office (GLO) maps and records on file at the BLM Arizona State Office. A cultural resources inventory identified all surveys, data recoveries, and area-specific literature reviews within the review area. In addition, a detailed reconnaissance survey was conducted within the proposed rights-of-way for the ultimate widening of I-17.

The field survey identified 15 prehistoric and 15 historic sites along the corridor, as well as one site consisting of rock features of unknown age or association. The prehistoric sites included artifact and lithic scatter sites, habitation sites with artifact scatters, and a multi-component quarry with an associated artifact scatter. The historic sites included trash scatters, a foundation remnant, an earthen ditch with a foundation remnant, and miscellaneous segments of the Old Black Canyon Highway. The previously recorded historic New River-Stricklin site was re-identified.

Of these 31 sites, only 10 sites are considered eligible or potentially eligible for listing in the National Register of Historic Places. Only one prehistoric artifact scatter site located on the east side of I-17 between Skunk Creek and the CAP Canal may be affected by the proposed improvements.

7.10 Socioeconomic Issues

7.10.1 Title VI / Environmental Justice

Two minority concentrations were identified in the project area – senior citizens and disabled persons at RV parks east of the frontage road south of Pinnacle Peak Road and persons below the poverty level and Hispanic/Latino persons east of I-17 between Deer Valley Road and Rose Garden Lane. To assess potential impacts to minority population concentrations in the project area, a Title VI/ Environmental Justice evaluation was conducted.

Minority and low-income residents in the vicinity regularly travel through the project area to access jobs, medical and social services, and shopping. While there would be temporary traffic delays due to lane restrictions during construction, access to these areas and services would be maintained. Construction of the preferred alternative would result in improved operational efficiency, reduced congestion, and improved access for minority and low-income persons in the project area using the improved roadway. Therefore, the preferred alternative would have a beneficial permanent impact and a temporary negative impact on all residents and motorists, including the identified minority concentrations adjacent to the project area.

The impacts expected to result from construction of the preferred alternative were evaluated for potential disproportionately high and adverse effects on the minority populations in the project area. Impacts at the RV parks east of the frontage road south of Pinnacle Peak Road would consist of R/W acquisition, displacements, and noise level increases. In the area east of I-17 between Deer Valley Road and Rose Garden Lane, no R/W acquisition or displacements would occur, and anticipated impacts would consist of noise level increases. Fair compensation would be provided for R/W acquisition and a relocation assistance program would be implemented for displaced residents and businesses. In addition, noise barriers would be constructed in these areas. These impacts would not constitute a high and adverse impact on the minority concentrations in the project vicinity. In addition, the temporary impacts during construction would be borne equally by all residents and the motoring public in the project area. Therefore, although minorities are present within the project area, the preferred alternative would not have a disproportionately high and adverse human health and environmental impact on minority or low-income populations.

7.10.2 Neighborhood Continuity

The proposed road widening would require the acquisition of right-of-way on both sides of I-17 between Deer Valley Road and Pinnacle Peak Road. This right-of-way acquisition would result in impacts to one mobile home park and three RV parks. However, because the right-of-way acquisition would occur at the edges of the parks, it would not result in the isolation of mobile home or RV lots from the surrounding park. Therefore, the impact on neighborhood continuity due to the proposed road widening would be minimal.

7.10.3 Relocations/Displacements

The proposed widening of I-17 would require the acquisition of additional R/W. This acquisition would displace some commercial and residential properties, primarily in the southern portion of the study corridor between the SR 101L TI and Skunk Creek. A summary of these anticipated displacements is provided in Table 25.

TABLE 25 – COMMERCIAL AND RESIDENTIAL DISPLACEMENTS

Property Name	Residential Displacements	Commercial and Other Facility Displacements
Free-Way Mini-Storage		1 building
Phoenix Metro RV Park	7 trailers surveyed in 10 RV hook-ups (including 5 permanent mobile homes)	Clubhouse/office building and pool/spa area and access from frontage road may be affected
Desert's Edge RV Park	4 trailers surveyed in 10 RV hook-ups (including 3 permanent mobile homes)	Perimeter of adjoining owner storage area affected
Phoenix Mobile Home Park	1 storage building and possibly 1 adjoining mobile home of permanent-type construction	
North Phoenix RV Park	2 cabins displaced and possible impacts to 1 to 7 other hook-ups that were occupied by RVs when surveyed.	

Property Name	Residential Displacements	Commercial and Other Facility Displacements
TOTAL	11 trailers surveyed in 20 RV hook-ups, 2 cabins, 1 storage building, and possible impacts to 2 to 7 other hook-ups that were occupied. This includes 8 mobile homes of permanent-type construction, and possibly 1 other mobile home.	1 commercial building, RV owner storage trailer area

Any necessary business or residential relocations would occur in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.

7.11 Section 4(f) Properties

The Ben Avery Shooting Range and Recreation Area, a Section 4(f) property, is located adjacent to I-17 in the northwest quadrant of the I-17/Carefree Highway TI. The proposed improvements would avoid encroaching into this property and would not affect access into the facility. Therefore, the proposed project would have no direct or proximity impacts on the Ben Avery Shooting Range and Recreation Area.

The Sun-Up Ranch abuts the western I-17 frontage road from MP-230.6 to 231.1, south of New River Road. The ranch, which was the site of a major sheep watering operation in the 1930s, was listed on the NRHP in 1988 as a Depression-era homestead. According to the NRHP nomination form, the property consists of seven contributing elements (four homestead cabins, two waterworks, and an orchard/sheep watering area/earthen stock pond), as well as five noncontributing elements (two mobile homes, one stable, remnants of the Black Canyon stage route, and prehistoric trash mounds). In addition, an historic rock fence was identified near the existing frontage road R/W in a 2003 cultural resources survey. The rock fence was determined to have been associated with the original ranch and was recommended as a contributing element. The survey also determined that the vegetation within the proposed new R/W was modern in origin (planted when I-17 was constructed) and recommended that it not be considered as a contributing element to the property's overall NRHP eligibility.

The preferred alternative would require the acquisition of 0.7 acres of new R/W from the Sun-Up Ranch property adjacent to the frontage road in order to accommodate a drainage channel. In order to avoid impacts to the historic rock fence, no drainage channel would be constructed along the approximately 600-foot section of the property where the rock fence is located. Therefore, no contributing elements of the site would be affected by construction of the preferred alternative.

The SHPO concurred with a "no adverse effect" determination for the Sun-Up Ranch on July 24, 2003. The cultural resources programmatic agreement will address the need for testing and/or data recovery for the stage route and trash mounds.

7.12 Secondary/Cumulative Impacts

The new facility would improve the LOS and operational efficiency of I-17 throughout the project area due to the increased capacity provided by the five-lane roadway and reduced congestion in Phoenix and outlying areas. Such improvements would likely have a positive secondary impact on the growth and the success of businesses and future community development in the I-17 corridor. However, some individual businesses on the roads currently used to bypass I-17 may experience reduced drive-by traffic due to the diversion of traffic onto I-17.

The recommended alternative would also have minor secondary effects on wildlife that inhabit the general vicinity of the project area or that utilize riparian vegetation located adjacent to the New River and other washes

in the area. The foraging and movement patterns of resident wildlife species would be temporarily altered during construction due to placement of fill and the removal of vegetation within the project area. However, these species would eventually adapt to the changed condition and resume regular behavioral patterns. The long-term impact would be minor due to the presence of available habitat upstream and downstream of the project.

Cumulative impacts are defined as "the incremental impact(s) of the action when added to other past, present, and reasonably foreseeable future actions." For this project, cumulative effects would be generally related to the growth and development in the general project vicinity that could be attributed to the phased widening of I-17.

Development has occurred recently in Phoenix and areas extending north to Anthem Way, and this development is continuing at a rapid rate. For example, the Tramonto development will soon dominate the northeast quadrant of the I-17/Carefree Highway TI. Other previously undivided sections are being subdivided and marketed for individual development. Furthermore, the proposed project could potentially have a slight growth-inducing effect due to the improved traffic operations in the I-17 corridor.

When considered cumulatively, the recommended alternative would have a positive effect with regard to economic development by providing a safer and more efficient roadway that would greatly improve mobility. Construction of this project would therefore contribute to the cumulative effects resulting from the eventual widening of I-17 to the Black Canyon City and beyond.